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NEUROSCIENCE

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Neuroscience publishes papers describing the results of original research on any aspect of the scientific study of the nervous system. Since one of the chief aims of the Journal is to promote communication between neuroscientists, the type of paper most suitable for publication is that in which new observations are clearly and succinctly reported and in which the purpose of the study is made meaningful to scientists of other disciplines. Any paper, however short, will be considered for publication provided that it reports significant, new and carefully confirmed findings with full experimental details. For *Instructions to Authors* see Vol. 40, No. 1, pp. iii–v.

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Note: For brain nuclei see relevant area, e.g. Hypothalamus, or under name of nucleus (e.g. Accumbens nucleus).

*Commentary

Abbreviations used:

ACh	Acetylcholine
cAMP	Adenosine 3',5'-cyclic phosphate
CGRP	Calcitonin gene-related peptide
ChAT	Choline acetyltransferase
CNS	Central nervous system
DNA	Deoxyribose nucleic acid
DRG	Dorsal root ganglion
FGF	Fibroblast growth factor
GABA	Gamma-aminobutyric acid
GAP-43	Growth associated protein-43
GFAP	Glial fibrillary associated protein
5-HT	5-Hydroxytryptamine
LAMP	Limbic system-associated membrane protein
L-DOPA	L-Dopamine
MAP	Microtubule associated protein
MEPP	Miniature endplate potential
MPTP	1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine
NADPH	Nicotinamide adenine dinucleotide phosphate
NMDA	N-methyl-D-aspartate
6OHDA	6-Hydroxydopamine
PHI	Peptide histidine isoleucine
REM	Rapid eye movement
TH	Tyrosine hydroxylase
TTC	Tetanus toxin fragment C
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Now a major focus of study by university, industry and government investigators, neural network research concerns the modelling of brain and behavioral processes and the application of these models to computer and related technologies. This research, now understood as an important aspect of the cognitive and neurosciences, is also precipitating a fundamental shift in computer science and artificial intelligence. Scientists and engineers are now using neural network models to help solve key technological problems. Interest in implementing these models in real-time hardware is, therefore, very high.
Topics include: Vision and image processing, speech and language understanding, pattern recognition, associative learning and long-term memory, self-organization, cognitive information processing, cooperative and competitive network dynamics and short-term memory, sensory-motor control and robotics, parallel distributed processing, local circuit and systems analyses of brain-behavior relationships, combinatorial optimization, electronic, optical, hybrid, and virtual devices and neurocomputers.

A Selection of Papers

D V BUONOMANO, D A BAXTER & J H BYRNE (USA), Small networks of empirically derived adaptive elements simulate some higher order features of classical conditioning.

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P GAUDIANO & S GROSSBERG (USA), Vector associative maps: Unsupervised real-time error-based learning and control of movement trajectories.

I A RYBAK, N A SHEVTSOVA, L N PODLADCHIKOVA & A V GOLOVAN (USSR), A visual cortex domain model and its use for visual information processing.

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